

REMARKS

I. Introduction

In response to the pending Office Action, Applicants have amended claims 8, 10 and 11. Specifically, claim 8 has been amended to incorporate the limitations of claim 9, and claim 11 has been rewritten in independent format in order to overcome the objections and to further clarify the intended subject matter of the invention. Applicants have also added new claim 12. Support for the amendment to claims 8 and 11 may be found, for example, on page 6, line 25 to page 7, line 7 of the specification. Support for new claim 12 may be found, for example, on page 7, lines 16-19 of the specification. Claim 9 has been cancelled, without prejudice. No new matter has been added.

For the reasons set forth below, Applicants respectfully submit that all pending claims are patentable over the cited prior art.

II. The Rejection Of Claims 8-11 Under 35 U.S.C. § 102/103

Claims 8-11 were rejected under 35 U.S.C. § 102(b) as being anticipated by or alternatively under 35 U.S.C. § 103(a) as being unpatentable over Nakahara et al. (USP No. 6,866,964) and Nakahara et al. (WO 02/082570 or USP No. 7,226,697). Applicants respectfully submit that Nakahara '697 and '964 fail to anticipate or render obvious the pending claims for at least the following reasons.

With regard to the present invention, amended claim 8 recites an electrochemical device comprising an electrode having an organic compound that serves as an active material and a substrate carrying said organic compound, wherein said organic compound has an electrode reaction site and a covalent bond site in the molecule thereof, said substrate and said covalent

bond site of said organic compound are bonded by a covalent bond, said organic compound has a free radical as said electrode reaction site in the molecule thereof, and said covalent bond is at least one selected from the group consisting of Si-O bond, Ti-O bond, C-C bond, C-O bond, and urethane bond.

One feature of amended claim 8 of the present disclosure is that an active material is attached to a substrate by the covalent bond selected from Si-O bond, Ti-O bond, C-C bond, C-O bond, and urethane bond. As a result of this feature, dissolution of the active material into the electrolyte is suppressed and the stability of the electrode is improved, thereby providing for an electrochemical device having excellent cycle characteristics.

In contrast to amended claim 8, Nakahara '697 and '964 are both silent with regard to an active material bonded to the substrate via a covalent bond. Furthermore, neither Nakahara '697 nor '964 teach that the covalent bond is one selected from Si-O bond, Ti-O bond, C-C bond, C-O bond, and urethane bond. As such, both Nakahara '697 and Nakahara '964 fail to disclose the limitation of claim 8 wherein the substrate and the covalent bond site of said organic compound are bonded by a covalent bond, and the covalent bond is at least one selected from the group consisting of Si-O bond, Ti-O bond, C-C bond, C-O bond, and urethane bond.

Moreover, amended claim 8 also recites that the organic compound has a free radical as the electrode reaction site in the molecule. As a result of having both a covalent bond site and an electrode reaction site, the active material may be firmly bonded to the substrate via the covalent bond, allowing the electrode reaction site to be free to react during operation of the battery. This allows for a battery to have excellent cycle characteristics.

In contrast to claim 8, Nakahara '697 and '964 both fail to disclose a radical compound having an electrode reaction site and a covalent bond site. In view of the above, it is clear that Nakahara '964 and Nakahara '697 both fail to disclose each limitation of amended claim 8.

Anticipation under 35 U.S.C. § 102 requires that each and every element of the claim be disclosed, either expressly or inherently in a prior art reference, *Akzo N.V. v. U.S. Int'l Trade Commission*, 808 F.2d 1471 (Fed. Cir. 1986). Also, in order to establish a *prima facie* case of obviousness, each and every limitation must be disclosed or suggested by the combination of the prior art references (see, M.P.E.P. § 2143.03). Nakahara '964 and Nakahara '697 do not disclose or suggest an electrochemical device comprising an electrode having an organic compound that serves as an active material and a substrate carrying said organic compound, wherein said organic compound has an electrode reaction site and a covalent bond site in the molecule thereof, said substrate and said covalent bond site of said organic compound are bonded by a covalent bond, said organic compound has a free radical as said electrode reaction site in the molecule thereof, and said covalent bond is at least one selected from the group consisting of Si-O bond, Ti-O bond, C-C bond, C-O bond, and urethane bond. Therefore, as it is apparent from the foregoing that Nakahara '964 and Nakahara '697 fail to anticipate or render obvious claim 8 of the present invention, Applicants respectfully request that the § 102 and § 103 rejections of claim 8 be traversed.

Moreover, as claim 11 incorporates the same limitations which are demonstrated to be unanticipated or rendered obvious by Nakahara '964 and Nakahara '697 as discussed above, Applicants submit that independent claim 11 is allowable over the cited prior art as well.

III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 8 and 11 are patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

Furthermore, as new claim 12 is dependent upon claim 8, which as indicated above is allowable over the cited prior art, Applicants respectfully submit that new claim 12 is allowable over the cited prior art.

IV. Conclusion


Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication of which is respectfully solicited.

Application No.: 10/814,342

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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